

Idaho Time Sensitive Emergency Program

Level IV Trauma Center

Application & Resource Tool Kit



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TSE Frequently Asked Questions

Why a TSE program?

The 2014 Idaho Legislature approved and funded a plan to develop a statewide Time Sensitive Emergency (TSE) system of care that addresses three of the top five causes of deaths in Idaho: trauma, stroke, and heart attack. Studies show that organized systems of care improve patient outcomes, reduce the frequency of preventable death, and improve the quality of life of the patient.

How does the TSE program work?

The Idaho Department of Health and Welfare provides oversight and administrative support for the day-to-day operation of the program.

A governor-appointed TSE Council made up of health care providers, EMS agencies, and administrators of hospitals representing both urban and rural populations is responsible for establishing Rules and Standards for the TSE system. The Council is the statewide governing authority of the system.

The state has been divided into six regions. Each of these has a Regional TSE Committee made up of EMS providers, hospital providers and administrators, and public health agencies. The regional committees will be the venue in which a wide variety of work is conducted such as education, technical assistance, coordination, and quality improvement. The Regional TSE Committees will have the ability to establish guidelines that best serve their specific community in addition to providing a feedback loop for EMS and hospital providers.

What guiding principles are the foundation of the TSE system?

- Apply nationally accepted evidence-based practices to time sensitive emergencies;
- Ensure that standards are adaptable to all facilities wishing to participate;
- Ensure that designated centers institute a practiced, systematic approach to time sensitive emergencies;
- Reduce morbidity and mortality from time sensitive emergencies;
- Design an inclusive system for time sensitive emergencies;
- Participation is voluntary; and
- Data are collected and analyzed to measure the effectiveness of the system.

How often does a center need to be verified?

Every three years.

How much does it cost to be verified and designated?

Verification is done once every three years. The on-site survey fee is \$1,500 and must be submitted with the application. Designation is valid for three years. The designation fee may be paid in three annual payments of \$1,000 or in one payment of \$3,000.

Whom do I contact if I have questions about the application process?

Idaho Time Sensitive Emergency Program

P.O. Box 83720

Boise, ID 83720-0036

tse@dhw.idaho.gov

<http://tse.idaho.gov/>

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Please do not hesitate to contact us with any questions or concerns regarding the application process. We would be happy to help you in any way we can. We may also be able to direct you to additional resources to assist you in meeting these standards.

Application Process

To apply for designation as a Level IV Trauma Center in Idaho **using the ACS (or another state) as the verifying agency:**

1. Print and complete the application. Submit one application per facility. A completed application includes:
 - A. Facility and Personnel Profile;
 - B. Certification Statement;
 - C. A copy of the pre-review questionnaire (PRQ) from the ACS; and
 - D. A copy of the ACS site review
2. Get the required signatures on the Certification Statement.
3. Put the application in a binder with labeled, tabbed dividers between each section: Profile, Certification, PRQ, and ACS site review.
4. Mail the completed application to:

Bureau of EMS and Preparedness
Time Sensitive Emergency Program
P.O. Box 83720
Boise, ID 83720-0036

Or for FedEx, UPS, etc.:
2224 E. Old Penitentiary Road
Boise, ID 83712

TSE Program staff will notify you within 10 business days of receipt of the application and confirm that the application is complete.

Application Process

To apply for designation as a Level IV Trauma Center **using the State of Idaho for verification**:

1. Complete and print the application. Submit one application per facility. A completed application includes:
 - A. Facility and Personnel Profile;
 - B. Certification Statement; and
 - C. Supporting Documentation
2. Obtain the required signatures on the Certification Statement.
3. Put the application in a binder with labeled, tabbed dividers between each section: Profile, Certification, and Supporting Documentation.
4. Mail the completed application to:

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Boise, ID 83712

TSE Program staff will notify you within 10 business days of receipt of the application and confirm that the application is complete.

Application for Level IV Trauma Center Designation

A. Hospital and Personnel Profile

Hospital Name:		
Mailing Address:	City:	Zip:
Physical Address:	City:	Zip:
Phone:	County:	
Application Contact and Title:		
Phone:	E-Mail:	

Hospital Administrator/Chief Executive Officer:	
Phone:	E-Mail:
Trauma Program Manager:	
Phone:	E-Mail:
Trauma Medical Director:	
Phone:	E-Mail:
Emergency Department Medical Director:	
Phone:	E-Mail:
Emergency Department Nursing Director:	
Phone:	E-Mail:

B. Certification Statement

I, _____ (CEO/COO), on behalf of _____
(hospital), voluntarily agree to participate in the Idaho Time Sensitive Emergency system as
a Level IV Trauma Center. We will work with emergency medical services and other
hospitals in our area to streamline triage and transport of trauma patients and participate
in our Regional Time Sensitive Emergency Committee.

I certify that:

- A. The information and documentation provided in this application is true and accurate.
- B. The facility meets the State of Idaho criteria to be designated as a Level IV Trauma Center.
- C. We will participate in the Idaho TSE Registry; and
- D. We will notify the Time Sensitive Emergency Program Manager immediately if we are unable to provide the level of trauma service we have committed to in this application.

Chair, Governing Entity (Hospital Board)

Date

Chief Executive Officer

Date

Trauma Program Manager

Date

Emergency Department Medical Director

Date

Designation Criteria for Level IV Trauma Center

Criteria for designation of Level IV Trauma Centers are based upon *Resources for Optimal Care of the Injured Patient, COT/American College of Surgeons, 2006*. Criteria to verify the services and systems are in place to ensure optimal care of the trauma patient are defined in that document. The following elements must be met for designation as a Level IV Trauma Center in Idaho.

Type I criteria must be in place at the time of the verification site visit to achieve verification. Type II criteria are also required but are less critical. If three or fewer Type II deficiencies are present at the time of the site visit and no Type I criteria are cited, a 1-year certificate of verification is issued. During the ensuing 12 months, if the trauma center successfully corrects the deficiencies, the period of verification will be extended to 3 years from the date of the initial verification visit.

If any Type I deficiency or more than three Type II deficiencies are present at the time of the initial verification site visit, the hospital will not be verified.

In order to assist Idaho facilities seeking TSE designation, the TSE Program has compiled the following lists and/or resources. Please note that the items contained in this document are provided for informational or demonstration purposes only. The TSE Council does not require facilities to utilize these specific resources, nor does the TSE Program recommend any one over another on this list. These resources are listed solely as a courtesy to facilities seeking TSE designation.

1. Trauma Systems

1.1 The center is involved in state and regional trauma system planning, development, and operation. This is essential for all designated trauma centers and participating acute care facilities within a region.

I

Requirement:

- Documentation of participation in at least 50% of Regional TSE Committee meetings.

Resources:

<http://tse.idaho.gov/>

1.2 The individual trauma centers and their health care providers are essential system resources that must be active and engaged participants.

I

Requirements:

- Documentation to show that center is actively caring for trauma patients.
- Documentation to show that center provides outreach education.
- Copy of trauma QI minutes for previous 3 months.

2. Description of Trauma Centers and Their Roles in a Trauma System

2.1 The center has a Trauma Medical Director who is trained, experienced, and committed to the care of the trauma patient.

I

Requirement:

- CV of trauma medical director supporting training and experience.

Resources:

<http://www.traumacenters.org/?page=EducOpps>

2.2 The Trauma Medical Director is responsible for developing and directing the quality improvement program.		I
Requirement: <input type="radio"/> Overview/policy/protocol for QI.	Sample: See pages 21 & 22.	

2.3 The trauma medical director is accountable for all trauma care and exercises administrative authority for the trauma program.		I
Requirements: <input type="radio"/> Organizational chart; or <input type="radio"/> Job description of Trauma Medical Director.	Sample: See pages 23 & 24.	

2.4 The trauma medical director is given administrative support for implementation of requirements as outlined in this document.		I
Requirement: <input type="radio"/> Organizational chart.		

2.5 The trauma medical director maintains personal involvement in patient care, staff education, and professional organizations.		I
Requirements: <input type="radio"/> Documentation showing proof of organizational membership/participation. <input type="radio"/> Trauma Medical Director job description. <input type="radio"/> Copy of trauma call schedule.	Sample: See page 23 & 24.	

2.6 The trauma center must have a Performance Improvement and Patient Safety (PIPS) program to ensure optimal care and continuous improvement of care.		I
Requirement: <input type="radio"/> Minutes from the PIPS meetings from the previous 3 months.		

2.7 Trauma centers must be able to provide the necessary human and physical resources to properly administer acute care consistent with Level IV verification.		I
Requirements: <ul style="list-style-type: none"> ○ Copy of staffing matrix. ○ Copy of Trauma Manual. 	Resources: <p>A sample Trauma Manual can be found at http://www.mc.uky.edu/traumaservices/TraumaProtocolManualfinal2012Word.pdf</p> <p>(Note that this is for reference only, and is more comprehensive than the TSE Council would expect of a Level IV Trauma Center.)</p>	

2.8 The physician or midlevel provider will be in the Emergency Department (ED) on patient arrival for the highest level of activation, provided there is adequate notification from the prehospital providers. The maximum acceptable response time is 30 minutes from patient arrival in the ED. The PIPS program must demonstrate that the provider's presence is in compliance at least 80% of the time.		I
Requirement: <ul style="list-style-type: none"> ○ Copy of response times from previous 3 months. 		

2.9 Well-defined transfer plans are in place.		I
Requirement: <ul style="list-style-type: none"> ○ Copy of protocols and agreements. 	Sample: <p>See page 25 & 26.</p>	

2.10 The center must have emergency coverage by a physician or midlevel provider 24/7.		I
Requirements: <ul style="list-style-type: none"> ○ Staffing matrix. ○ Copy of emergency response policy. 		

2.11 The ED must be adequately staffed and capable of performing resuscitation 24/7.		I
Requirement: <ul style="list-style-type: none"> ○ Copy of staffing matrix. 		

2.12 ED providers must have completed Advanced Trauma Life Support (ATLS) at least once.	II
Requirement: <input type="radio"/> Copy of ATLS certification card.	Resources: http://web20.facs.org/atls_cr/ATLS_Course_Search.cfm

2.13 The Trauma Program Operational Process Performance Committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured.	I
Requirement: <input type="radio"/> Copy of TPOPPC minutes from previous 3 months.	

2.14 The PIPS program must have audit filters to review and improve pediatric and adult patient care.	II
Requirement: <input type="radio"/> Copy of audit filters.	

2.15 Collaborative treatment and transfer guidelines reflecting the center's capabilities must be developed and regularly reviewed with input from higher-level trauma centers in the region.	II
Requirement: <input type="radio"/> Documentation that supports meetings are occurring.	

2.16 The center must actively participate in Regional Time Sensitive Emergency Committee meetings.	I
Requirement: <input type="radio"/> Documentation of participation (at least 50%).	

2.17 The center must be the local trauma authority and assume the responsibility for providing training for prehospital and hospital-based providers.	II
Requirement: <input type="radio"/> Documentation regarding regional trauma training.	

2.18 The facility must participate in regional disaster management plans and exercises.		II
Requirement:	Resources:	
<input type="radio"/> Documentation showing participation.	http://healthandwelfare.idaho.gov/Health/ReadyIdaho/tabid/1613/Default.aspx	

3. Prehospital Trauma Care

3.1 The center is involved in the development of protocols that guide prehospital trauma care.		II
Requirements:		
<input type="radio"/> Copy of protocols.		
<input type="radio"/> Documentation of cooperation with and education of prehospital providers.		

3.2 The center must have a system to notify dispatch and EMS agencies when on divert status. The center must do the following:		
a. Prearrange alternative destinations with transfer protocols in place;		II
b. Notify other centers of divert or advisory status;		II
c. Maintain a divert log; and		II
d. Subject all diverts and advisories to performance improvement procedures.		II
Requirement:	Sample:	
<input type="radio"/> Copy of divert policy.	See page 27 & 28.	

4. Interhospital Transfer

4.1 The center must perform a PIPS review of all transfers.		I
Required documentation:		
<input type="radio"/> Copy of PIPS documentation regarding transfers.		

4.2 Trauma centers that refer burn patients to a designated burn center must have in place written transfer protocols with the referral burn center.		II
Requirement:	Sample:	
<input type="radio"/> Copy of protocols	See page 25 & 26.	

5. Hospital Organization and the Trauma Program

5.1 The criteria for a graded activation must be clearly defined by the trauma center, with the highest level of activation criteria listed as Priority 1.

II

Required documentation:

- Copy of response criteria for graded activations

Sample:

See page 29-32.

Table 1. Minimum Criteria for Full Trauma Team Activation

- Confirmed blood pressure less than 90 mm Hg at any time in adults and age-specific hypotension in children;
- Gunshot wounds to the neck, chest, or abdomen or extremities proximal to the elbow/knee;
- Glasgow Coma Scale score less than 9 with mechanism attributed to trauma;
- Transfer patients from other hospitals receiving blood to maintain vital signs;
- Intubated patients transferred from the scene, **OR** Patients who have respiratory compromise or are in need of emergent airway;
- Included intubated patients who are transferred from another facility with ongoing respiratory compromise (does not include patients intubated at another facility who are now stable from a respiratory standpoint); and
- Emergency physician's discretion.

5.2 Other potential criteria for trauma team activation that have been determined by the trauma program to be included in various levels of trauma activation must be evaluated on an ongoing basis in the PIPS process to determine their positive predictive value in identifying patients who require the resources of the full trauma team.

II

Requirement:

- Copy of PIPS meetings for previous 3 months.

5.3 The trauma team must be fully assembled within 30 minutes of notification or patient arrival (whichever is shorter) with an achievement rate of 80%.

II

Requirement:

- Copy of PIPS documentation.

5.4 At a minimum, the Priority 1 criteria will be included in the highest level of activation in all trauma centers.		II
Requirement: ○ Copy of Trauma Manual.	Resources: A sample Trauma Manual can be found at http://www.mc.uky.edu/traumaservices/TraumaProtocolManualfinal2012Word.pdf (Note that this is for reference only, and is more comprehensive than the TSE Council would expect of a Level IV Trauma Center.)	

6. Clinical Functions: General Surgery

6.1 For centers with surgical capabilities, the surgeon must be on-site within 30 minutes of patient arrival with an 80 % achievement rate for highest level activations.		I
Requirement: ○ Copy of TPOPPC documentation.		

11. Collaborative Clinical Services

11.1 Conventional radiology services (non-CT) must be available in all trauma centers 24/7.		I
Requirement: ○ Copy of staffing matrix.		

11.2 If the center has an Intensive Care Unit (ICU), the PIPS program must document that timely and appropriate care and coverage are being provided.		II
Requirement: ○ Copy of PIPS documentation.		

11.3 Laboratory services must be available 24/7 for the standard analysis of blood, urine, and other body fluids including microsampling when appropriate.		I
Requirements: ○ Copy of laboratory staffing matrix. ○ Copy of Trauma Manual.		

11.4 The blood bank must be capable of blood typing and cross-matching.	I
Requirement: <input type="radio"/> Copy of Trauma Manual.	

11.5 The center must have a transfusion protocol developed collaboratively between the trauma service and the blood bank.	I
Requirements: <input type="radio"/> Copy of Trauma Manual. <input type="radio"/> Copy of transfusion protocol.	

11.6 Midlevel providers who participate in the initial evaluation of trauma patients must maintain current Advanced Trauma Life Support (ATLS) certification.	II
Requirement: <input type="radio"/> Copy of ATLS certification cards.	Resources: http://web20.facs.org/atls_cr/ATLS_Course_Search.cfm

11.7 The trauma medical director must work with midlevel providers to ensure appropriate orientation, credentialing, and skill maintenance.	II
Required documentation: <input type="radio"/> Copy of the Trauma Manual.	

13. Rural Trauma Care	
13.1 Transfer guidelines and protocols between facilities must in place and based on the capabilities of rural hospitals and local EMS agencies.	II
Requirement: <input type="radio"/> Copy of transfer guidelines and protocols.	Sample: See page 26-26 and 31-33.

13.2 The center's PIPS program must work with receiving facilities to obtain feedback on all transferred patients.	II
Requirements: <input type="radio"/> Copy of PIPS protocol regarding feedback on transferred patients. <input type="radio"/> Copy of Regional TSE Committee minutes from previous 3 months.	

13.3 System and process issues (such as documentation and communication), clinical care issues (including identification and treatment of immediate life-threatening injuries), and transfer decisions must be reviewed by the PIPS program.	I
Requirements: Copy of PIPS minutes from previous 3 months.	

15. Trauma Registry

15.1 Trauma registry data are collected, analyzed, and used to support the PIPS program.	I
Requirement: ○ Copy of PIPS documentation supporting registry data analysis	

15.2 Data are submitted to the Idaho TSE Registry. At least 80% of trauma cases must be entered into the registry within 180 days of treatment.	I
Requirement: ○ Letter from the Idaho Trauma Registry confirming compliance.	Resources: http://www.idahotrauma.org/

15.3 The trauma program ensures that trauma registry confidentiality measures are in place.	I
Requirement: ○ Copy of policy regarding confidentiality of trauma data.	

15.4 There are strategies for monitoring data validity for the trauma registry.	I
Requirement: ○ Documentation letter from the Idaho Trauma Registry confirming validity.	

16. Performance Improvement and Patient Safety (PIPS)

16.1 The trauma center demonstrates a clearly defined PIPS program for the trauma population. All process and outcome measures must be documented in a written PIPS plan and updated annually.	II
Requirement: ○ Copy of PIPS minutes from previous 3 months.	

16.2 Criteria for all levels of trauma team activation (TTA) must be defined and reviewed annually.	II
Requirement: <input type="radio"/> Copy of Trauma Manual.	
16.3 All TTAs must be categorized by the level of response and quantified by number and percentage.	II
Requirement: <input type="radio"/> Copy of documentation for previous 3 months.	
16.4 Delays in trauma surgeon response time must be monitored and reviewed for cause of delay and opportunities for improvement. Corrective actions must be documented.	II
Requirements: <input type="radio"/> Copy of TPOPPC minutes from previous 3 months.	
16.5 In centers with ICUs, transfers to a higher level of care must be reviewed to determine the rationale for transfer, adverse outcomes, and opportunities for improvement.	II
Requirement: <input type="radio"/> Copy of PIPS program documentation regarding transfers, adverse outcomes, and opportunities for improvement.	
16.6 The PIPS program is supported by a reliable method of data collection that consistently gathers valid and objective information necessary to identify opportunities for improvement.	II
Requirement: <input type="radio"/> Copy of PIPS program documentation.	
16.7 All trauma centers must use a risk stratified benchmarking system to measure performance and outcomes.	II
Requirements: <input type="radio"/> Provide documentation of tracking mortality, Injury Severity Score (ISS), mechanism of injury, and transfer rates.	

16.8 The trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidence-based validated resources to achieve benchmark goals.		II
Requirements: ○ Copies of clinical practice guidelines, protocols, and algorithms.	Resources: EAST Practice Management Guidelines: https://www.east.org/education/practice-management-guidelines	

16.9 All process and outcome measures must be documented in a written PIPS plan and updated annually.		II
Requirement: ○ Copy of PIPS documentation.		

17. Outreach and Education

17.1 The center must provide annual public and professional education.		II
Requirement: ○ Record of outreach/education opportunities.	Sample: http://montana.providence.org/hospitals/st-patrick/services/emergency-department/level-ii-trauma/education/	

17.2 All general surgeons, emergency physicians, and midlevel providers on the trauma team must have completed ATLS at least once.		II
Requirement: ○ Copy of current ATLS certification card.	Resources: http://web20.facs.org/atls_cr/ATLS_Course_Search.cfm	

18. Prevention

18.1 The center must have someone in a leadership position that has injury prevention as part of his or her job description.		II
Requirement: ○ Copy of job description.	Sample: See page 36.	

18.2 The center must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data.		II
Requirement: <input type="radio"/> Copy of protocol.	Sample: See page 37.	

18.3 The center must screen all trauma patients for alcohol use and provide a brief intervention if appropriate.		II
Requirements: <input type="radio"/> Copy of protocol. <input type="radio"/> Copy of PIPS documentation tracking protocol.		

20. Disaster Planning and Management

20.1 The trauma center has a hospital disaster plan described in the hospital disaster manual.		II
Requirement: <input type="radio"/> Summary of the disaster plan; or <input type="radio"/> Or copy of the Disaster Manual.	Resources: https://www.acep.org/WorkArea/DownloadAsset.aspx?id=45263	

21. Organ Procurement Activities

21.1 The center has written protocols for declaration of brain death.		I
Required documentation: <input type="radio"/> Copy of protocol.	Sample: See page 38-41.	

Trauma PI Tracking Form

Demographics	Source of Information	Location of Issue
Date of Report: Medical Record #:	<input type="radio"/> Trauma Program Manager <input type="radio"/> Nurse Manager <input type="radio"/> Staff Nurse <input type="radio"/> Physician <input type="radio"/> Patient relations <input type="radio"/> Rounds <input type="radio"/> Multi-disciplinary conference <input type="radio"/> Registry <input type="radio"/> QA/QI chart audit <input type="radio"/> Other: _____	<input type="radio"/> EMS <input type="radio"/> ED <input type="radio"/> OR <input type="radio"/> ICU/PACU <input type="radio"/> Floor <input type="radio"/> Radiology <input type="radio"/> Lab <input type="radio"/> Rehab <input type="radio"/> Other: _____
Complication, problem or complaint:		
Date of review:	Reviewed by:	
Determination: <input type="radio"/> System-related <input type="radio"/> Disease-related <input type="radio"/> Provider-related <input type="radio"/> Unable to determine		Preventability: <input type="radio"/> Non-preventable <input type="radio"/> Potentially preventable <input type="radio"/> Preventable <input type="radio"/> Unable to determine
Corrective action: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input type="radio"/> Not necessary <input type="radio"/> Trend/track similar occurrences <input type="radio"/> Education <input type="radio"/> Guideline/protocol </div> <div style="width: 45%;"> <input type="radio"/> Peer review <input type="radio"/> Counseling <input type="radio"/> Resource enhancement <input type="radio"/> Privilege/credentialing review <input type="radio"/> Other: _____ </div> </div>		
Action Plan:		
Signature:		Date:

Trauma PI Filter Tracking Worksheet

Patient name: _____

Admit date: _____ Medical record #: _____

Complete for any case involving a Trauma Team activation, admit, transfer or death.

Data Point	Yes	No	N/A
ED provider arrival > 15 minutes after pt arrival			
Care provided by PA or NP			
Death			
Transfer			
Transfer out after > 60 minutes			
Under-triaged			
Trauma Team not activated when criteria met			
IV lines smaller than 16 gauge			
GCS \leq 8 and no ET tube or surgical airway within 15 minutes			
IV fluids not warmed			

Any chart that generated a “Yes” must be reviewed by the trauma PI team.

<input type="radio"/> No improvement opportunities identified Comments: 	
Signature:	Date:

Sample Trauma Program Medical Director Job Description

Job Title: Trauma Program Medical Director

Reports to: Chief of Medical Staff

Qualifications:

1. MD, PA or NP.
2. Member in good standing of the hospital or clinic medical staff.
3. Currently certified in Advanced Trauma Life Support (ATLS).
4. Three years clinical experience in emergency/trauma care.
5. Two years administrative experience.
6. Ability to establish and maintain effective interpersonal relationships.
7. Ability to accept and implement change.
8. Ability to solve problems and make decisions.
9. Demonstrated history of positive relations with colleagues, support staff, hospital-based providers, administrators, and patients.

Nature and Scope: The Trauma Medical Director is responsible for the ongoing development, growth and oversight/authority of the Trauma Program. The Trauma Medical Director is responsible for promoting high standards of practice through development of trauma policies, protocols and practice guidelines; participating in performance improvement monitoring; and oversee staff education. He/she has authority to act on all trauma performance improvement and administrative issues and critically review trauma deaths and complications that occur within the center. Decisions affecting the care of trauma patients will not be made without the knowledge, input and approval of the Trauma Medical Director.

Principal Duties and Responsibilities:

Administration:

- Participate in the research, development and writing of trauma policies, protocols and practice guidelines.
- Implement all trauma program policies and procedures as they pertain to patient care.
- Organize, direct and integrate the trauma program with all other departments and services within the hospital.
- Promote a cooperative and collaborative working environment among the clinical disciplines involved in trauma care.
- Maintain an effective working relationship with the medical staff, trauma service staff, administration and other departments.
- Assess need for equipment, supplies, and budget
- Assist the Trauma Program Coordinator in developing and meeting the trauma program budgetary goals.
- Oversee, participate in, and develop projects that ensure the cost-effectiveness of care provided by physicians and hospital.

Program Initiatives:

- Develop and provide input on the development and maintenance of practice guidelines, policies, and methodologies for medical/surgical trauma care.
- Participate in site review by regulatory agencies.
- Organize, direct and implement departmental practices to assure continued compliance with applicable laws including the guidelines established by the Idaho Time Sensitive Emergency System.
- Demonstrate positive interpersonal relationship with colleagues, referral MDs, hospital personnel, and

patients/families in order to achieve maximum operational effectiveness and customer satisfaction.

- Assure transfer agreements are in place and in good standing; maintain relationship with receiving facilities; and foster collaborative relationships.
- Make appropriate referrals for specialty services and communicate regularly with referring physicians as appropriate.
- Provide trauma care leadership and consultation for emergency, surgery and intensive care unit departments.
- Participate in regional and statewide activities affecting the trauma program.
- Attend local and national meetings and conferences to remain current regarding issues relevant to the performance of duties.
- Demonstrate consistent, efficient, cost effective, and quality trauma care at all times.
- Participate in trauma patient/family satisfaction projects as developed by hospital.

Performance Improvement:

- Determine and implement PI activities appropriate to the trauma program.
- Oversee the trauma PI program and participate in other quality initiatives that deal with the care of injured patients.
- Review and investigate all trauma PI inquiries in collaboration with the Trauma Program Manager and refer to the appropriate committees.
- Monitor compliance with trauma treatment guidelines, policies and protocols.
- Assure that the quality and appropriateness of patient care are monitored and evaluated and that appropriate actions based on findings are taken on a consistent basis.
- Report quality of care issues promptly to appropriate individuals, including Trauma Program Manager and hospital administration.
- Identify and correct deficiencies in trauma care policies, guidelines and protocols.
- Consult with appropriate medical staff and administration regarding quality care issues and adverse outcomes; identify areas to improve patient care.
- Assure that continuum of care is maintained.
- Identify representatives from various disciplines appropriate to participate in PI activities.
- Coordinate, schedule, and facilitate the PI peer review process.
- Assist the Trauma Program Manager in evaluating the effectiveness of corrective actions resulting from PI processes.

Clinical Education:

- Support the requirements for trauma CME by participating and assisting in the education and training of center personnel physicians and specialists.
- Provide education for hospital staff regarding trauma program policies and appropriate medical practices.

Community Outreach:

- Maintain relations with community organizations and legislative bodies whose activities relate to trauma care and injury prevention.
- Participate in hospital outreach activities as requested by administration.
- Develop and participate in trauma community education and injury prevention activities.
- Function as a liaison to other centers within the region.

Transfer Agreement Example

This agreement is made and entered into by and between YOUR FACILITY NAME, CITY, STATE, a nonprofit corporation (hereinafter called "YOUR FACILITY") and RECEIVING FACILITY NAME, CITY, STATE, a nonprofit corporation, (hereinafter called "RECEIVING FACILITY"):

WHEREAS, both YOUR FACILITY and RECEIVING FACILITY desire, by both means of this Agreement, to assist physicians and the parties hereto in the treatment of trauma patients (e.g., burn, traumatic brain injuries, spinal cord injuries, pediatrics); and whereas the parties specifically wish to facilitate: (a) the timely transfer of patients and information necessary or useful in the care and treatment of trauma patients transferred, (b) the continuity of the care and treatment appropriate to the needs of trauma patients, and (c) the utilization of knowledge and other resources of both facilities in a coordinated and cooperative manner to improve the professional health care of trauma patients.

IT IS, THEREFORE, AGREED by and between the parties as follows:

PATIENT TRANSFER: The need for transfer of a patient from YOUR FACILITY to RECEIVING FACILITY shall be determined and recommended by the patient's attending physician in such physician's own medical judgment. When a transfer is recommended as medically appropriate, a trauma patient at YOUR FACILITY shall be transferred and admitted to RECEIVING FACILITY as promptly as possible under the circumstances, provided that beds and other appropriate resources are available. Acceptance of the patient by RECEIVING FACILITY will be made pursuant to admission policies and procedures of RECEIVING FACILITY.

YOUR FACILITY agrees that it shall:

Notify RECEIVING FACILITY as far in advance as possible of transfer of a trauma patient.

Transfer to RECEIVING FACILITY the personal effects, including money and valuables and information relating to same.

Make every effort within its resources to stabilize the patient to avoid all immediate threats to life and limbs. If stabilization is not possible, YOUR FACILITY shall either establish that the transfer is the result of an informed written request of the patient or his or her surrogate or shall have obtained a written certification from a physician or other qualified medical person in consultation with a physician that the medical benefits expected from the transfer outweigh the increased risk of transfer.

Affect the transfer to RECEIVING FACILITY through qualified personnel and appropriate transportation equipment, including the use of necessary and medically appropriate life support measures.

YOUR FACILITY agrees to transmit with each patient at the time of transfer, or in the case of emergency, as promptly as possible thereafter, pertinent medical information and records necessary to continue the patient's treatment and to provide identifying and other information.

RECEIVING FACILITY agrees to state where the patient is to be delivered and agrees to provide information about the type of resources it has available.

Bills incurred with respect to services preformed by either party to the Agreement shall be collected by the party rendering such services directly from the patient, third party, and neither party shall have any liability to the other for such charges.

This agreement shall be effective from the date of execution and shall continue in effect indefinitely.

Either party may terminate this agreement on thirty (30) days notice in writing to the other party. If either party shall have its license to operate revoked by the state, this Agreement shall terminate on the date such revocation becomes effective.

Each party to the Agreement shall be responsible for its own acts and omissions and those of their employees and contractors and shall not be responsible for the acts and omissions of the other institutions.

Nothing in this Agreement shall be construed as limiting the right of either to affiliate or contract with any hospital or nursing home on either a limited or general basis while this agreement is in effect.

Neither party shall use the name of the other in any promotional or advertising material unless review and written approval of the intended use shall first be obtained from the party whose name is to be used.

This agreement shall be governed by the laws of the State of Minnesota. Both parties agree to comply with the Emergency Medical Treatment and Active Labor Act of 1986, and the Health Insurance Portability and Accountability Act of 1996 and the rules now and hereafter promulgated thereunder.

This Agreement may be modified or amended from time to time by mutual agreement of the parties, and any such modification or amendment shall be attached to and become part of the Agreement.

YOUR FACILITY

RECEIVING FACILITY

SIGNED BY:

SIGNED BY:

DATE:

DATE:

Trauma Diversion Policy

Purpose:

Occasions may arise when one or more essential hospital resources are functioning at maximum capacity or otherwise unavailable and it is in the best interests of the trauma patient to be directed to an alternative facility for care.

Policy:

The need to go on “trauma divert” is a rare situation but might occur in the following circumstances:

- The emergency department is saturated; demand for critical patient care resources exceeds availability.
- Emergency department resources are fully committed due to an external disaster/multiple-casualty event.
- Emergency department resources are unavailable due to an internal disaster or catastrophic mechanical failure.

In such rare cases, the emergency department physician may make the decision to divert trauma patients for a short period of time. The need to remain on divert status should be reviewed at least hourly to provide for the shortest possible time on divert.

The diversion of trauma patients only pertains to incoming ambulance patients and not to walk-in patients. A patient incoming via ambulance while on “trauma divert” will be accepted if the EMS provider and monitoring physician determine that the patient is experiencing a condition such that transport to the next closest appropriate trauma hospital could reasonably result in increased morbidity or death. “Trauma divert” status is a request to EMS personnel to transport the patient to another facility. The patient or EMS personnel may decline the request to divert provided they have been properly apprised of the potential for delayed treatment affecting the care of the patient.

Ambulance patients who have arrived on hospital property will be admitted to the emergency department and evaluated by a physician regardless of the hospital’s diversion status.

Procedure:

Going on divert:

1. The emergency department physician will decide on the need to go on “trauma divert.” The physician will notify the emergency department charge nurse.
2. The charge nurse notifies the following of trauma divert status:
 - a. Emergency department nursing staff
 - b. EMS dispatch center(s) (e.g. sheriff departments); request EMS personnel to call hospital early with patient information
 - b. [NEIGHBORING HOSPITAL(S)]
3. The emergency department charge nurse begins a “Trauma Divert Tracking Log.”

When contacted by EMS with information regarding a seriously injured trauma patient, the emergency department staff person taking report notifies the EMS crew that the hospital is on trauma divert and immediately puts the crew in contact with the emergency department physician. The physician will determine if the patient is to be seen in the emergency department or diverted to a nearby facility. The decision whether of not to divert must be accomplished very quickly in order to minimize the amount of time the patient spends in transit.

Going off divert:

1. The emergency physician who initiated the closure must:
 - a. Continuously evaluate the need to remain on trauma divert.
 - b. Make the decision as to when the hospital is no longer on trauma divert.
 - c. Notify the emergency department charge nurse when no longer on trauma divert.
2. The charge nurse notifies:
 - a. Emergency department nursing staff
 - b. EMS dispatch center
 - c. [NEIGHBORING HOSPITAL(S)]
3. The emergency department charge nurse completes the "Trauma Divert Tracking Log" and forwards it to the trauma program manager.

Trauma Triage Guidelines

These guidelines were approved for statewide use by the Idaho Time Sensitive Emergency Council on July 14, 2015.

Priority 1

- SBP of 90 or less, respiratory rate <10 or >30
- Tachycardia HR >130 AND meet Priority 2 criteria
- Age specific hypotension in children
 - <70mmHg + 2 x age)
 - HR > 200 or < 60
- Respiratory compromise/obstruction
- Intubation
- Inter-facility transfer patients receiving blood to maintain vital signs
- GCS 8 or less with mechanism attributed to trauma
- Major limb amputation
- Pregnancy >20 weeks gestation with leaking fluid or bleeding or abdominal pain that also meets Priority 3 criteria
- Open skull fracture
- Paralysis of an extremity
- Penetrating injury to abdomen, head, neck, chest or proximal limbs including the knee and elbow
- Emergency MD Discretion

Priority 2

- GCS 9 to 13
- Chest tube/ needle thoracotomy
- Pelvic fracture (suspected)
- Two obvious long bone fractures (femur/ humerus)
- Flail chest
- Near drowning
- Ejection from ENCLOSED vehicle
- Burns > 20% BSA OR involvement of face, airway, hands, or genitalia
- Sensory deficit of an extremity

Priority 3

- Death of same car occupant
- Extrication time > 20 minutes
- Fall 2 x patient's height
- Auto vs. bike OR auto vs. pedestrian
- Non-enclosed wheeled or mechanized transport > 20 mph
- Horse ejection or rollover
- 12" intrusion into occupant space or vehicle
- "Star" any window or windshield
- Rollover
- Broken/bent steering wheel
- Trauma mechanism w/ change in LOC
- Amputation of one or more digits
- 10-20% TBSA (second or third degree)

Response to Graded Activation

For each priority activation, the Trauma Team members are:

Priority-1 Activation

- Emergency provider (present within 15 minutes of patient's arrival)
- General surgeon (present within 30 minutes of patient's arrival)
- Two emergency department RNs
- Nursing supervisor
- Emergency department tech or EMT
- Respiratory therapy
- Anesthesia
- Laboratory technician
- Radiology technician
- Emergency department HUC
- Security
- Social services or chaplain

Priority-2 Activation

- Emergency provider (present within 15 minutes of patient's arrival)
- Emergency department RN
- Nursing supervisor
- Emergency department tech or EMT
- Radiology technician
- Laboratory technician
- Emergency department HUC
- Security

Priority-3 Activation

- Emergency provider (present within 15 minutes of patient's arrival)
- Emergency department RN
- Emergency department tech or EMT

Trauma Team Members & Their Roles/Responsibilities

The individual roles of the team members are subject to change based on the needs of the patient and resources available during the resuscitation. Below is a guideline. The provider leading the resuscitation may modify the duties of any team member if in the best interest of the patient.

ED Provider

- Perform primary and secondary survey
- Perform or delegate airway management
- Perform procedures as needed such as chest tube insertion, central venous access, ultrasound exam
- Order appropriate lab and radiographs
- Responsible for all medications and fluids given
- Make triage and transfer decisions
- Determine the need for and mode of inter-facility transfer (air vs. ground) early in resuscitation course
- Communicate directly with receiving physician at trauma hospital regarding transfer
- Document case (complete trauma flow sheet, dictate emergency department note)
- Complete and sign patient transfer form

ED Nurse

- Attach BP, cardiac and oximetry monitors to the patient.
- Obtain initial vital signs and report out loud to emergency department provider. (BP, HR, RR, SpO₂ and temp (core temp if hypothermia is considered).
- Maintain and monitor all intravenous lines. Obtain fluid resuscitation orders and IV rate from emergency department provider. Report to recorder (at end of emergency department course) total IV intake and urine output.
- Set up fluid and blood warmer. Start blood transfusion as ordered.
- Remain at patient bedside throughout the emergency department course.
- Draw up and label airway drugs (succinylcholine, etomidate, etc.). Be prepared to administer drugs as ordered by the emergency department provider.
- Obtain IV access if needed. (If primary IV is done, place 2nd IV and draw blood).
- Insert Foley catheter when authorized by the emergency department provider.
- Set up chest tube drainage system if needed.
- Assist emergency department provider with procedures as needed.
- Administer tetanus booster and antibiotics when ordered by emergency department provider.
- Initially document emergency department course by filling out the trauma resuscitation record.

Nursing Assistant or EMT

- Assist with transfer from the EMS gurney to the trauma bed.
- Assist in removing patient's clothing; covers patient immediately with warm blankets.
- Assist with intubation: provide in-line cervical spine immobilization or Sellick's maneuver as directed.
- Assist with procedures as needed.
- Assist with transport of patient to X-ray.
- Check airway equipment before the patient's arrival. (i.e., suction, laryngoscopes, ambu bag, O₂)
- Maintain oxygen; insure SpO₂ unit functions properly; assist ventilation with BVM as necessary and as directed by emergency department provider.

Laboratory Technician

- Obtain pre-labeled blood tubes from trauma room; attach ID bracelet to patient.
- Obtain syringes from IV start (by RN) or perform venipuncture to obtain blood for trauma battery.
- Determine availability of blood; bring O negative blood to trauma room immediately if requested.
- Obtain urine from Foley insertion and run UA on all patients. Run urine HCG on all females in reproductive age group.
- Run ABGs.
- Perform ECG if requested.

Radiology Technician

- Respond immediately to trauma team activation page; transfer portable x-ray machine to trauma room, insure enough film plates for basic trauma radiographs (e.g., lateral c-spine, chest, pelvis).
- Place chest plate on trauma cart under backboard before patient arrives.
- Determine radiographic priorities per physician in charge.
- Ensure at least 2 additional aprons are in trauma room and available for emergency department staff.
- Develop films and immediately take them to the trauma room.
- Inquire if CT will be needed; call in/notify CT tech to prepare for emergency scan.
- Copy radiographs if patient will be transferred; ensure originals accompany the patient.

Health Unit Coordinator

- Activate trauma team upon notification of TTA for the field; confirm all team members have arrived. Record arrival times.
- Determine if additional medical staff will be needed.
- Contact receiving trauma hospital as directed by emergency department provider.
- Assemble and copy all documentation for transport team, e.g., chart, labs, x-ray.
- Direct family members to family support person.

Sample Trauma Transfer Protocol

Purpose:

Trauma patients who will be transferred out of this facility to a definitive care facility emergently must be identified early, assessed and treated quickly and transferred efficiently in order to provide them the best possible outcome.

Policy:

Patients to be transferred can often be identified before they arrive in the emergency department. Arrangements for emergent transfer can often begin the moment the emergency department staff is notified by EMS that they are en route with a major trauma patient. Other patients may require evaluation by the emergency department physician before the decision to transfer is made.

Once the decision to transfer has been made, it should not be delayed to obtain X rays, CT scans or laboratory results that do not immediately impact the resuscitation. At this point, the focus of the emergency department staff is on resuscitation and stabilization with the goal of minimizing the patient's length of stay in the emergency department.

Consideration should be given to whether the patient will be transferred via ground or air. Generally, seriously injured trauma patients should be transferred by air when possible. Consideration should be given to ground transport if the patient can be received by the definitive care facility sooner than if transported by air or if aero medical transfer is significantly delayed or unavailable for any reason.

Transport vehicles should be staffed by paramedics and/or nurses whenever possible. Trauma patients on whom invasive procedures have been performed or who have received medications must be transferred under the care of personnel who are adequately trained to manage their resulting condition. If necessary, a physician or nurse from this hospital may accompany the patient.

The following are conditions that should immediately activate emergency transfer procedures:

- Central Nervous System
 - o Penetrating injury/open fracture with or without cerebrospinal fluid leak
 - o Depressed skull fracture
 - o GCS <11 or deteriorating mental status or lateralizing neurological signs
 - o Spinal cord injury or major vertebral injury
- o Chest
 - o Major chest wall injury or pulmonary contusion
 - o Wide mediastinum or other signs suggesting great vessel injury
- o Cardiac injury
- o Pelvis/Abdomen
 - o Pelvic fracture with shock or other evidences of continuing hemorrhage
 - o Open pelvic injury
 - o Unstable pelvic ring disruption
 - o Major abdominal vascular injury
- o Major Extremity Injuries
 - o Fracture/dislocation with loss of distal pulses
- o Multiple-System Injury
- o Head injury combined with face, chest, abdominal, or pelvic injury

- o Burns with associated injuries
- o Secondary Deterioration (Late Sequelae)
- o Single or multiple organ system failure (deterioration in central nervous, cardiac, pulmonary, hepatic, renal, or coagulation systems)
- Major tissue necrosis

The following conditions should be considered for immediate transfer:

- Central Nervous System
 - o GCS >10 and <14
- Chest
 - o Patients who may require prolonged ventilation
 - o >2 unilateral rib fractures
 - o Abdomen
 - o Solid organ injury
 - o Major Extremity Injuries
 - o Open long-bone fractures
 - o Extremity ischemia
 - o Multiple long-bone fractures
- Multiple-System Injury
 - o Injury to more than two body regions
- Co-morbid Factors
 - o Age >55 years
 - o Children ≤ 5 years of age
 - o Cardiac or respiratory disease
 - o Insulin-dependent diabetes
 - o Morbid obesity
 - o Pregnancy
 - o Immunosuppression
- Secondary Deterioration (Late Sequelae)
 - o Mechanical ventilation required

SAMPLE

Procedure:

Before patient arrival:

1. After becoming aware that a trauma patient is en route who likely will require emergent transfer, the emergency department staff activates the trauma team and notifies the emergency department physician of the likelihood of transfer. Ascertain from EMS if they have already ordered aero medical transportation.
2. The physician identifies the appropriate mode of transfer (i.e., aero medical vs. ground) and qualifications of transferring personnel.
3. HUC contacts the appropriate aero medical and/or ground transportation, obtains ETA:
 - [INSERT CONTACT INFORMATION]
 - [INSERT CONTACT INFORMATION]
 - [INSERT CONTACT INFORMATION]

After patient arrival:

1. The physician identifies and contacts the receiving facility, and requests the receiving physician to accept the transfer. The two should discuss the current physiological status of the patient and the optimal timing of transfer.
2. Before transfer, the physician should:
 - Ensure chest tubes are placed in the presence of pneumothorax.
 - Ensure at least two IV lines are established.
 - Consider securing the airway with an endotracheal tube, LMA or surgical airway if GCS <11.
 - Consider sending additional blood, equipment and supplies (medications, fluids, etc.) that the patient may need en route if not available in the transporting vehicle.
3. The HUC copies of all available documentation to accompany the patient:
 - EMS report
 - Resuscitation record
 - X rays, CT scans
 - Lab results

Injury Prevention Job Description

POSITION TITLE: Trauma Injury Prevention Coordinator

REPORTS TO: Trauma Program Manager

POSITION PURPOSE:

This position is responsible for the overall planning, development and oversight of the Trauma Prevention Program for [NAME OF FACILITY]'s Trauma Center. The objectives of the program are to:

- (1) Educate the community about injury prevention and trauma care; to indirectly decrease death and injury by improving trauma care within the region; and
- (2) Raise the visibility of [NAME OF FACILITY]'s Trauma Center through increasing public awareness by generating positive media coverage through community outreach.

EDUCATION/OUTREACH

- Assist Trauma Program Manager with development and implementation of injury prevention programs.
- Act as a liaison to other hospitals and community groups related to trauma prevention and outreach.

JOB REQUIREMENTS:

- Capable of effectively handling multiple priorities.
- Experience in developing, overseeing and evaluating the effectiveness of community benefit programs.
- Strong organizational and planning skills.
- Basic graphic design principles.
- Basic desktop publishing techniques.
- Strong media relations skills an asset.
- Effective time management skills.
- Knowledge of communications theory and public relations techniques.
- Understanding of and recent experience in, the healthcare environment.
- Public Speaking

DESIRED QUALIFICATIONS:

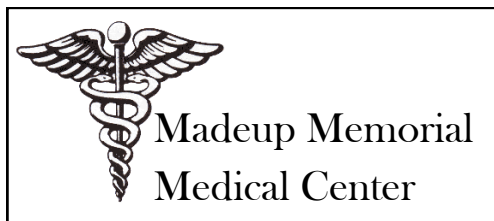
Education:

- Current licensure as a Registered Nurse in the state of Idaho

Experience:

- Experience in a trauma care setting.
- Skill in the use of Microsoft Office.
- Ties in the healthcare/safety community are a plus.
- Teaching and leadership experience.





Title: Determining Brain Death

Policy Statement: Criteria for determining brain death shall be established in accordance with accepted medical standards.

Procedure:

I. Definition of Brain Death:

- A. Brain death is the absence of brain function when the proximate cause is known, can be demonstrated to be irreversible, and demonstrated by repetitive standardized criteria.
- B. Prerequisite: Acute Central Nervous System (CNS) catastrophe and involved clinical situations which can be documented by clinical and neuroimaging testing.
- C. Exclusion Criteria:
 - 1. Core temperature less than or equal to 95° Fahrenheit or 32° Celsius.
 - 2. Reversible electrolyte, metabolic or endocrine disorder.
 - 3. Drug overdose or therapeutic mean substance intoxication or poisoning:
 - a) Sub-therapeutic barbiturate level is acceptable.
 - b) Discontinue all sedation and neuromuscular blockade.

II. Procedure for Brain Death Examination:

- A. The three cardinal findings in brain death are:
 - 1. Coma or unresponsiveness (see Appendix A),
 - 2. Absence of brain stem function (see Appendix B), and
 - a) No pupillary reflex.
 - b) No facial sensation and facial motor response.
 - c) No ocular movement
 - d) No oculovestibular reflex (caloric)
 - e) No gag reflex
 - f) No integrated motor response to pain. No localizing, withdrawal, extensor posturing, flexor posturing.
 - 3. Apnea (see Appendix C).
- B. Brain Death Determination
 - 1. Must be done in the presence of a physician.
 - 2. Results will be recorded in the progress notes by documenting the supporting evidence and pronouncing brain death.
 - 3. In some instances, the test may need to be repeated at 12, 24, and 48 hours.

4. Following physician declaration of brain death the clinical coordinator should be notified to determine if the patient meets criteria for coroner notification. Such notification should occur at time of brain death determination rather than at the time of cardiac death.

C. Pediatric Brain Death

1. The same excluding criteria as for adults will be used for patients less than 14 years and less than 120 pounds.
2. Special instructions for individualized pediatric apnea tests are noted in Appendix D.

III. Appendix A: Coma or Unresponsiveness:

- A. No spontaneous movement, eye opening or responses after commands.
- B. No movement elicited by painful stimuli, other than spinal cord reflex movements.
- C. Note:
 1. Deep tendon reflexes are spinal cord reflexes.
 2. Shivering, goose bumps, arm movements, reaching of the hands toward the neck, arching of the back, forced exhalation, and thoracic respiratory-like movements are possible after brain death and are likely release phenomena of the spinal cord including the upper cervical cord.

IV. Appendix B: Absence of Brain Stem Function:

- A. No pupillary reflex.
 1. Pupils are fixed and mid position (4-9 mm).
 2. No change after shining a strong light in each eye sequentially in a dark room.
- B. Facial sensation and facial motor response.
 1. No corneal reflex to touch with a sterile cotton swab or tissue. Must touch the cornea and not the conjunctiva.
 2. No grimacing to deep pressure on nail bed, supraorbital ridge or TM joint.
- C. Ocular movement.
 1. No oculcephalic reflex (doll's eyes) (tested only if no c-spine instability).
 2. No eye movement in response to turning of head side to side at 30° elevation.
- D. No oculovestibular reflex (caloric).
 1. No eye movements within three minutes after irrigating each tympanic membrane sequentially with 50 ml iced water for 45-60 seconds.
 2. Allow five minutes between testing on each side. Head of supine patient is elevated 30°.
 3. Remove cerumen. Tympanic membranes must be intact.
- E. No gag reflex. No retching or movement of the uvula after touching the back of pharynx or moving the endotracheal tube.
- F. No integrated motor response to pain. No localizing, withdrawal, extensor posturing, flexor posturing.

V. Appendix C: Apnea Testing:

A. To reduce the incidence of barotrauma:

1. Oxygen catheter should be no larger than 50% of the inner diameter of the artificial airway to prevent excessive back pressure.
2. Oxygen flow should be reduced to 4 LPM if the artificial airway is smaller than a size 6.5.

B. Done with patient under direct physician visualization:

1. Verify patient's body temperature is greater than 95° Fahrenheit.
2. Verify levels of central nervous system depressants/neuromuscular blockers.
3. Oxygenate the patient for at least ten (10) minutes with 100% FiO₂.
4. Adjust ventilator for pCO₂ in the normal range.
 - a) If the patient is chronically hypercarbic, then adjust the ventilator to the normal pH.
 - b) In this case, it is best to obtain a confirmatory test.
5. Obtain a baseline ABG.
6. Disconnect the ventilator.
7. Place oxygen catheter down endotracheal tube or trach at six liters/minute.
8. Observe closely for respiratory effort.
9. Monitor heart rate, heart rhythm, and blood pressure continuously.
10. Document vital signs and observations every two to three minutes.
11. Draw an ABG at six to ten (6-10) minutes.
12. Discontinue test when:
 - a) Signs of respiratory effort, cardiac instability, or hypotension are observed.
 - b) pCO₂ of 60 torr is reached.
 - c) Patient has been off ventilator for ten (10) minutes.

C. Interpretation of the apnea test:

1. If respiratory movements are absent and the PaCO₂ is greater than or equal to 60 mm/Hg, and greater than or equal to 20 mm/Hg rise above the preapnea test level, the apnea test is positive and supports the diagnosis of brain death. (What if the PaCO₂ is less than 60 off vent?)
2. If respiratory movements are observed, the apnea test is negative and test should be repeated.
3. If the ventilator is reconnected early but the PaCO₂ is greater than or equal to 60 mm/Hg or greater than or equal to 20 mm/Hg above baseline, the apnea test is positive and supports the diagnosis of brain death.
4. If the ventilator is reconnected early but the PaCO₂ is less than 60 mm/Hg and less than 20 mm/Hg above baseline, then the result is indeterminate and an

additional confirmatory test can be considered.

- D. In some equivocal cases cerebral blood flow testing may be an adjunct.
 - 1. Demonstration of absence of intracranial circulation by angiographic contrast or radioisotopic flow studies.
 - 2. Somatosensory evoked potential with bilateral absence of N20-P22 response with median nerve stimulation.
 - 3. Demonstration of absence of cerebrovascular blood flow following MRI/MRA imaging.

VI. Appendix D: Pediatric Brain Death – Special Instructions:

- A. Set appointment time when the treatment team can be present at the bedside under the direction of the Pediatric Neurologist team leader.
- B. Ensure and document that patient is normothermic and not under the influence of medications which suppress respirations.
- C. Pre-oxygenate the patient with 100% FiO₂ for fifteen to twenty (15-20) minutes.
- D. Adjust ventilator rate so that the patient's starting pCO₂ is between 35-40 mm/Hg per TcPCO₂ monitor.
- E. After completion of hyperoxygenation and achievement of TcPCO₂ stabilization, draw ABG and ensure that the gas levels correlate with the bedside TcPCO₂ monitor.
- F. Turn the ventilator to CPAP mode or CPAP level specified by the physician.
- G. Chart the patient's vital signs, SpO₂, TcCO₂ and independent respiratory efforts at one (1), three (3), five (5), seven (7), and ten (10) minute test periods.
- H. Draw a posttest ABG.
- I. Reinstate mechanical ventilation per physician order.

Resources:

- Guidelines for the determination of death; report of the Medical Consultants on the Diagnosis of Death to the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. JAMA 1981; 246:2184-2186.
- Practice parameters for determining brain death in adults (Summary statement). Quality Standards Subcommittee of the American Academy of Neurology. Neurology 1995; 45:1012-1014.
- Guidelines for the determination of brain death in children. Task Force for the Determination of Brain Death in Children. Pediatric Neurology 1987; 3:242-243.
- Current concepts: The diagnosis of brain death. The New England Journal of Medicine 2001; 344(16): 1215-1221.
- Practice Parameters: Determining Brain Death in Adults. Neurology 1995;45:1012-1014.
- Sever Brain Injury to Neurological Determination of Death: A Canadian Forum. Canadian council for Donation and Transplantation, April 9-11, 2003, Vancouver, British Columbia.

Additional Resources

Links to Additional Resources

American Burn Association: www.ameriburn.org

American College of Surgeons – Committee on Trauma: <http://facs.org/trauma/index.html>

American Trauma Society: www.amtrauma.org

Association for the Advancement of Automotive Medicine: <http://aaam.org/>

Centers for Disease Control & Prevention, Guidelines for the Field Triage for the Injured Patient: <http://www.cdc.gov/FieldTriage/>

Eastern Association for the Surgery of Trauma: <http://www.east.org/resources/treatment-guidelines/triage-of-the-trauma-patient>

Emergency Nurses Association: www.ena.org

Resources for the Optimal Care of the Injured Patient 2006:

<https://web4.facs.org/ebusiness/ProductCatalog/ProductCategory.aspx?id=26>

Society of Trauma Nurses: <http://www.traumanurses.org/>